Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1   1.   (Currently Amended) A method for processing databases in a system
2   which includes a plurality of storage areas each storing a database and a plurality of computers
3   each having a database management program (DBMS) running thereon which manages one of
4   said plurality of storage areas, each said storage area being associated with only said ~~DMBS~~
5   DBMS managing said storage area, said method comprising:
6   when a failure has occurred in one of said plurality of computers as a failed
7   computer, obtaining preset substitution information indicating that ~~the~~ a storage area managed by
8   ~~the~~ a DBMS running on said failed computer is to be managed by ~~the~~ a DBMS already running
9   on another one of said plurality of computers as a substitute DBMS; and
10   based on said substitution information, changing association of said storage area
11   with said DBMS on said failed computer to said substitute DBMS, said storage area to be
12   managed by said substitute DBMS already running on said another computer.

1   2.   (Currently Amended) The method as recited in claim 1, wherein said
2   substitution information includes association information associating an identifier of said DBMS
3   running on said failed computer with an identifier of said substitute DBMS already running on
4   said another computer, said substitution information indicating that said storage area managed by
5   said DBMS running on said failed computer is to be managed by said substitute DBMS already
6   running on said another computer when a failure occurs.

1   3.   (Previously Presented) The method as recited in claim 2, wherein said
2   substitution information comprises a mutual substitution configuration in which two of the
3   DBMSs are associated with one another whereby one of the two DBMSs is a substitute DBMS
4   for the other of the two DBMSs as a failed DBMS mutually.

1   4.   (Previously Presented) The method as recited in claim 2, wherein said

2   substitution information comprises a substitution configuration in which a group of the DBMSs

3   from a first DBMS to a last DBMS are associated with each other in a manner whereby a first

4   DBMS is a substitute DBMS for a second DBMS which is a substitute DBMS for a third DBMS,

5   and the last DBMS is a substitute DBMS for the first DBMS.

1   5.   (Currently Amended) The method as recited in claim 2, wherein said

2   substitution information comprises an n-to-1 substitution configuration whereby one of the

3   DBMSs is a substitute DBMS for n of the DBMSs as failed ~~DMBSs~~ DBMSs.

1   6.   (Currently Amended) The method as recited in claim 1, wherein said

2   substitution information includes a plurality of pieces of association information each associating

3   an identifier of said DBMS running on said failed computer, an identifier of the substitute DBMS

4   already running on one of a plurality of other computers, and priority information indicating a

5   priority with one another, said substitution information indicating that said storage area managed

6   by said DBMS running on said failed computer is to be managed by said substitute DBMS

7   already running on one of said other computers selected according to said priority information.

1   7.   (Previously Presented) The method as recited in claim 1, further

2   comprising taking over processing from said DBMS on said failed computer by said substitute

3   DBMS on said another computer based on said substitution information.

1   8.   (Currently Amended) A method for processing a database in a database

2   management system which divides said database into a plurality of sub-databases and associates

3   each sub-database with one of a plurality of database servers to process data, said method

4   comprising:

5   if one of said plurality of database servers is found to have failed as a failed

6   database server when a request for processing is made to said failed database server, obtaining an

7   identifier of another one of said plurality of database servers already running as a substitute

8   database server which is to take over said processing from said failed database server based on

9   information on substitution relations between said plurality of database servers, and switching

10   from said failed database server to said substitute database server for receiving said request for

11   said processing;

12   wherein said information on substitution relations between said plurality of

13   database servers indicating which one of said plurality of database servers is used as a substitute

14   database server if one of the other database servers fails is stored beforehand.

1   9.   (Original) The method as recited in claim 8, further comprising:

2   receiving said request to which a substitution instruction based on said

3   information on substitution relations has been added upon a failure of said failed database; and

4   recognizing said substitution instruction and performing said processing in place

5   of said failed database server based on said recognized substitution instruction.

1   10.   (Original) The method as recited in claim 9, further comprising, before

2   performing said processing in place of said failed database server, changing an execution

3   environment of said substitute database server to an execution environment of said failed

4   database server, said substitute database server taking over said processing.

1   11.   (Previously Presented) The method as recited in claim 9, wherein

2   performing said processing in place of said failed database server comprises using a database

3   buffer of the substitute database server for accessing a database storage area, a table, or an index

4   associated with said failed database server.

1   12.   (Currently Amended) A system for processing databases, said system

2   comprising:

3   a plurality of storage areas each storing a database; and

4   a plurality of computers each having a database management program (DBMS)

5   running thereon which manages one of said plurality of storage areas, each said storage area

6   being associated with only said DBMS managing said storage area;

7   wherein each DBMS includes a substitution control section configured, when a

8   failure has occurred in one of said plurality of computers as a failed computer, to obtain preset

9   substitution information indicating that ~~the~~ a storage area managed by ~~the~~ a DBMS running on

10   said failed computer is to be managed by ~~the~~ a DBMS already running on another one of said

11   plurality of computers as a substitute DBMS; and, based on said substitution information, to

12   change association of said storage area with said DBMS on said failed computer to said

13   substitute DBMS, said storage area to be managed by said substitute DBMS on said another

14   computer.

1   13.   (Currently Amended) The system as recited in claim 12, wherein said

2   substitution information includes association information associating an identifier of said DBMS

3   running on said failed computer with an identifier of said substitute DBMS already running on

4   said another computer, said substitution information indicating that said storage area managed by

5   said DBMS running on said failed computer is to be managed by said substitute DBMS already

6   running on said another computer when a failure occurs.

1   14.   (Previously Presented) The system as recited in claim 13, wherein said

2   substitution information comprises a mutual substitution configuration in which two of the

3   DBMSs are associated with one another whereby one of the two DBMSs is a substitute DBMS

4   for the other of the two DBMSs as a failed DBMS mutually.

1   15.   (Previously Presented) The system as recited in claim 13, wherein said

2   substitution information comprises a substitution configuration in which a group of the DBMSs

3   from a first DBMS to a last DBMS are associated with each other in a manner whereby a first

4   DBMS is a substitute DBMS for a second DBMS which is a substitute DBMS for a third DBMS,

5   and the last DBMS is a substitute DBMS for the first DBMS.

1   16.   (Previously Presented) The system as recited in claim 13, wherein said

2   substitution information comprises an n-to-1 substitution configuration whereby one of the

3   DBMSs is a substitute DBMS for n of the DBMSs as failed DBMSs.

1   17.   (Currently Amended) The system as recited in claim 12, wherein said

2   substitution information includes a plurality of pieces of association information each associating

3   an identifier of said DBMS running on said failed computer, an identifier of the substitute DBMS

4   already running on one of a plurality of other computers, and priority information indicating a

5   priority with one another, said substitution information indicating that said storage area managed

6   by said DBMS running on said failed computer is to be managed by said substitute DBMS

7   already running on one of said other computers selected according to said priority information.

1   18.   (Previously Presented) The system as recited in claim 12, wherein the

2   substitution control section of said substitute DBMS is configured to take over processing from

3   said DBMS running on said failed computer based on said substitution information.

1   19.   (Currently Amended) A system for processing databases, said system

2   comprising:

3   a plurality of storage areas each storing a database; and

4   a plurality of ~~computers~~ database servers ~~each having a database management~~

5   ~~program (DBMS) running thereon which manages~~ managing one of said plurality of storage

6   areas, each said storage area being associated with only said ~~DBMS~~ database server managing

7   said storage area;

8   wherein each ~~DBMS~~ database server includes a substitution control section

9   configured, if one of said plurality of database servers is found to have failed as a failed database

10   server when a request for processing is made to said failed database server, to obtain an identifier

11   of another one of said plurality of database servers already running as a substitute database

12   server which is to take over said processing from said failed database server based on

13   information on substitution relations between said plurality of database servers, and switching

14   from said failed database server to said substitute database server for receiving said request for

15   said processing; and

16   wherein said information on substitution relations between said plurality of

17   database servers indicating which one of said plurality of database servers is used as a substitute

18   database server if one of the other database servers fails is stored beforehand.

1   20.   (Original) The system as recited in claim 19, further comprising a

2   communications control apparatus configured to receive said request to which a substitution

3   instruction based on said information on substitution relations has been added upon a failure of

4   said failed database; and wherein said substitution control section is configured to recognize said

5   substitution instruction and perform said processing in place of said failed database server based

6   on said recognized substitution instruction.

1   21.   (Original) The system as recited in claim 20, wherein said substitution

2   control section is configured to change an execution environment of said substitute database

3   server to an execution environment of said failed database server before performing said

4   processing in place of said failed database server.

1   22.   (Previously Presented) The system as recited in claim 20, wherein said

2   substitution control section is configured to use a database buffer of the substitute computer for

3   accessing a database storage area, a table, or an index that is an access method for database

4   processing, associated with said failed database server.

1   23.   (Previously Presented) The system as recited in claim 20, further

2   comprising a processing request receiving device configured, if one of said plurality of database

3   servers is found to have failed as a failed database server when a request for processing is made

4   to said failed database server, to add a substitution instruction to said request for processing

5   based on said information on substitution relations, before sending said request for processing to

6   said database servers.

1   24.   (Currently Amended) In a computer readable medium storing a program

2   for processing databases in a system which includes a storage area storing said database and a

3   plurality of computers each having a database management program (DBMS) running thereon

4   which manages said storage area, each said storage area being associated with only said DBMS

5   managing said storage area, the program comprising:

6   code for, when a failure has occurred in one of said plurality of computers as a

7   failed computer, obtaining preset substitution information indicating that ~~the~~ a storage area

8   managed by ~~the~~ a DBMS running on said failed computer is to be managed by ~~the~~ a DBMS

9   already running on another one of said plurality of computers as a substitute computer DBMS;

10   and

11   code for, based on said substitution information, changing association of said

12   storage area with said DBMS running on said failed computer to said substitute DBMS, said

13   storage area to be managed by said substitute DBMS already running on said another computer.

1   25.   (Currently Amended) The program as recited in claim 24, wherein said

2   substitution information includes association information associating an identifier of said DBMS

3   running on said failed computer with an identifier of said substitute DBMS already running on

4   said another computer, said substitution information indicating that said storage area managed by

5   said DBMS running on said failed computer is to be managed by said substitute DBMS already

6   running on said another computer when a failure occurs.

1   26.   (Currently Amended) The program as recited in claim 24, wherein said

2   substitution information includes a plurality of pieces of association information each associating

3   an identifier of said DBMS running on said failed computer, an identifier of the substitute DBMS

4   already running on one of a plurality of other computers, and priority information indicating a

5   priority with one another, said substitution information indicating that said storage area managed

6   by said DBMS running on said failed computer is to be managed by said substitute DBMS

7   already running on one of said other computers selected according to said priority information.

1   27.   (Currently Amended) The program as recited in claim 24, further

2   comprising code for taking over processing from said ~~DMBS~~ DBMS running on said failed

3   computer by said substitute DBMS based on said substitution information.

1   28.   (Original) The program as recited in claim 27, further comprising:

2   code for receiving said request to which a substitution instruction based on said

3   information on substitution relations has been added upon a failure of said failed database; and

4   code for recognizing said substitution instruction and performing said processing

5   in place of said failed database server based on said recognized substitution instruction.

1   29.   (Original) The program as recited in claim 28, further comprising code

2   for, before performing said processing in place of said failed database server, changing an

3   execution environment of said substitute database server to an execution environment of said

4   failed database server, said substitute database server taking over said processing.

1   30.   (Previously Presented) The program as recited in claim 28, wherein said

2   code for performing said processing in place of said failed database server comprises code for

3   using a database buffer of the substitute DBMS for accessing a database storage area, a table, or

4   an index that is an access method for database processing, associated with said failed database

5   server.

1   31.   (Currently Amended) A system for processing databases, said system

2   comprising:

3   a plurality of storage areas each storing a database;

4   a plurality of computers each having a database management program (DBMS)

5   running thereon which manages one of said plurality of storage areas, each said storage area

6   being associated with only said DBMS managing said storage area; and

7   a management system coupled with the plurality of computers;

8   wherein the management system is configured to determine whether a failure has

9   occurred in one of said plurality of computers as a failed computer; and, if a failure has occurred,

10   to obtain preset substitution information indicating that ~~the~~ a storage area managed by ~~the~~ a

11   DBMS running on said failed computer is to be managed by ~~the~~ a DBMS <u>already</u> running on

12   another one of said plurality of computersas a substitute DBMS; and

13   wherein each DBMS is configured, when a failure has occurred in one of said

14 plurality of computers as a failed computer, to obtain the preset substitution information from the

15 management system; and, based on said substitution information, to change association of said

16 storage area with said DBMS running on said failed computer to said substitute DBMS, said

17 storage area to be managed by said substitute DBMS <u>already</u> running on said another computer.

1   32. (Previously Presented) The system as recited in claim 31, wherein said

2 management system is configured to send a request for processing including accessing a storage

3 area; and wherein, if the DBMS associated with the storage area to be accessed is the DBMS

4 running on the failed computer, the management system is configured to add a substitution

5 instruction to the request based on said preset substitution information.

1   33. (Previously Presented) The system as recited in claim 32, wherein said

2 substitute DBMS is configured, upon receiving said request from said management system with

3 said substitution instruction, to change an execution environment of said substitute DBMS to an

4 execution environment of said DBMS running on said failed computer before performing said

5 processing in place of said DBMS running on said failed computer.

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